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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/458,278	12/09/1999	RAMESH DIVAKAR	2886.2001000	8676

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EXAMINER

DERRINGTON, JAMES H

ART UNIT	PAPER NUMBER
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1731

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DATE MAILED: 07/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/458,278

Applicant(s)

DIVAKAR, RAMESH

Examiner

James Derrington

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) 46 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-45 is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 AND 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-45, drawn to a process, classified in class 264, subclass 676.
- II. Claim 46, drawn to a product, classified in class 361, subclass 234.

The inventions are distinct, each from the other because of the following reasons:

Inventions Group I and Group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process as claimed can be used to make other and materially different products such as a contact member for handling molten metal.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Jeffrey Abel on June 27, 2002 a provisional election was made with oral traverse to prosecute the invention of Group I, claims 1-45. Affirmation of this election must be made by applicant in replying to this Office action. Claim 46 stands withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claims 1-2, 13-14, 18-22, 29-34, 37, 42-42 and 45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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The recitation "atmosphere deficient in nitrogen" is vague and indefinite because it is unclear as to what type of comparative atmosphere the atmosphere of the claims "is deficient" and to what extent the atmosphere is deficient in nitrogen. Applicant is requested to recite numerical values for the nitrogen atmosphere or the type of atmosphere employed.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-12, 15-18, 32-35 and 42-45 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Enck et al (6,017,485).

This reference discloses the process of treating a body consisting essentially of aluminum nitride comprising exposing the body to a temperature of at least 1000 °C in an argon atmosphere (See Abstract, Col. 16, lines 13-16 and Table 1). The resultant bodies are useful as electrostatic chucks and have low resistivity (See Title). The atmospheres shown by Enck et al clearly qualify as being "deficient in nitrogen" – See Col. 8, line 49 ff and Col. 16, lines 13-16. With regard to times and temperatures of the instant dependent claims attention is directed to Table 1 where the claimed limitations are shown by Enck et al. With regard to the claimed cooling rates of the dependent claims, Enck et al disclose rates of 15 °C and .7 °C per minute (See examples 1-2 and 3-4). The bodies of Enck et al have densities greater than 95 % theoretical density (Abstract) with densities of 97 % or greater being preferred (Col. 6, lines 26 ff) and clearly no patentable distinction is seen in claims 17 and 28. With regard to claim 18, Enck et al disclose that the heat treatment can be a sintering process and one of ordinary skill in the art would understand that a "green body" would be used in the sintering process of the reference (See Table 1 and Col. 8, line 61 ff). With regards to the instant numerical limitations of volume resistivity recited in claims 32, 34 and 45, Enck et al may not explicitly describe these parameters, but the reference most definitely describes the technique of providing low resistivity AlN bodies as useful electrostatic chucks (title) by heat treating in argon and/or atmospheres having low

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nitrogen particle pressures (example 4). In view of these teachings would be able to decide the level of resistivity needed to provide a useful electrostatic chuck.

Claims 13-14, 19-31 and 36-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Enck et al (6,017,485). as applied to claims 1-12, 15-18, 32-35 and 42-45 above, and further in view of Kurokawa et al (4,650,777) or Fukushima et al (5,457,075).

Each of Kurokawa et al (Col. 2, line 49 and Col. 3, line 15) and Fukushima et al (Col. 6, lines 5-29) disclose the production of sintered ALN bodies and show that the particle size falls within the claim limitations and that hot isostatic and pressure sintering is conventionally employed. Specifically, Fukushima et al disclose that a range to .2 to 5 microns is preferred and a pressure of 100 to 2000 kg/cm<sup>2</sup> is employed for pressure sintering. These pressures encompass the pressures recited in the dependent claims. Kurokawa et al disclose that the particle is preferably smaller than 2 microns. It would have been obvious for one of ordinary skill in the art to use the conventional particle sizes and pressures of these references with the process of Enck et al in order to obtain the art recognized advantages of the secondary references.

Claims 1-12, 15-18, 32-35 and 42-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guiton et al (5,320,990) or Mallia et al (4,778,778).

Guiton et al show the process of sintering AlN bodies containing sintering aids and then cooling at rates falling within the range of dependent claim 11, e. g. about 5.5 °C/min or about 0.1 °C/min (See tables I, II and III). The process can be conducted in an inert atmosphere of argon (col. 4, line 43 and Col.10, line 37 Mallia et al show the

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process of sintering AlN bodies containing sintering aids and cooling at rates falling within the claimed ranges. Mallia et al is enabling as to a cooling rate of no more than 300°C per hour or 100°C per hour, i.e. 5 °C or about 1.6 °C per minute (See Col. 8 and Col. 9). Inert atmospheres containing argon are disclosed at (Col. 5, line 39). The atmospheres of the references would be deficient in nitrogen to the extent required by the claims.

Claims 13-14, 19-31 and 36-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guiton et al (5,320,990) or Mallia et al (4,778,778) as applied to claims 1-12, 15-18, 32-35 and 42-45 above, and further in view of Kurokawa et al (4,650,777) or Fukushima et al (5,457,075).

Each of Kurokawa et al (Col. 2, line 49 and Col. 3, line 15) and Fukushima et al (Col. 6, lines 5-29) disclose the production of sintered ALN bodies and show that the particle size falls within the claim limitations and that hot isostatic and pressure sintering is conventionally employed. Specifically, Fukushima et al disclose that a range to .2 to 5 microns is preferred and a pressure of 100 to 2000 kg/cm<sup>2</sup> is employed for pressure sintering. These pressures encompass the pressures recited in the dependent claims. Kurokawa et al disclose that the particle is preferably smaller than 2 microns. It would have been obvious for one of ordinary skill in the art to use the conventional particle sizes and pressures of these references with the process of the primary references in order to obtain the art recognized advantages of the secondary references.

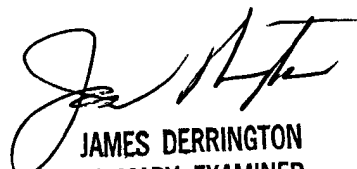
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Derrington whose telephone number is 703 308-3832. The examiner can normally be reached on 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 703 308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703 305-7718 for regular communications and 703 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

jd  
July 15, 2002

  
JAMES DERRINGTON  
PRIMARY EXAMINER  
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